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## Hermeneutical Discourse Consciousness Architecture for the Establishment of Hermeneutical Discourse

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### Abstract

The primary purpose of this paper is to address the role and the significance of fusion of intentions in order to establish meaningful and interpretable discourse called Hermeneutical Discourse. The presence of intention is an ultimate requirement to establish a discourse structure which can then be used to semantically interpret and hermeneutically analyze the psychological temporal movement (psychological time) of discourse between an actor, the message sender and the reactor, the message receiver in any intelligent communication. The meaningful physical spatial-temporal (physical time) contiguity of semantic- pragmatic linkages will be able to form information fusion in the message delivery only if the fusion of intentions between the actor and reactor take place effectively in the communication. In this paper, the discourse procedures for the fusion of intentions to take place effectively between two agents called actor and reactor has been modeled as a Hermeneutical Discourse Consciousness Architecture (HDCA). This HDCA is able to frame and organize the hermeneutical discourse processes within individual intelligent agents by setting the intention as a moving ground of agents' consciousness for the establishment of hermeneutical discourses. Any intelligent agent is able to perform the conscious act if the property called intention is embodied in their cognition. The functions and the phenomena of Consumptive Illumination as an informative value of communication in relation with fusion of intentions will be analyzed from hermeneutical discourse perspective. The benefit of this architecture is to establish a systematic approach to understand cognitive process of interpretive (hermeneutical) discourse, develop a new frame of discourse processes and procedures for the fusion of intentions and provide a systematic procedure to transmigrate the frame of discourse into intelligent communication agents.

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## 1. INTRODUCTION

The work presented in this paper is an attempt to elaborate on intention as a consciousness embodiment and fundamental entity which is incarnated in any communication relay process. This intentionality will ensure that the direction and the context of any discourse can be deciphered explicitly as a hermeneutical discourse progress. The goal of this implementation is three-fold:

- i) To examine the necessity of incorporating the intentionality as an embodied entity into the cognitive process of binding predicate called consciousness.
- ii) To present the Hermeneutical Discourse Consciousness Architecture (HDCA) as an emulated architecture for the social hermeneutical discourse between any intelligent agents.
- iii) Address the behaviourism of consciousness binding and intentionality in social interactive structure of discourse.

## 2. ONTOLOGICAL HERMENEUTICS

The deep logical intentional organization of interactions (discourses) is absolutely determined and formed by the cognitive state of a human being. The properties of this cognitive (knowing) state of human psyche of which properties can be modelled and interpreted according to a systematic structure is called Hermeneutical Discourse Consciousness Architecture (HDCA), refer to **Figure 1**.

Hermeneutical Discourse Consciousness Architecture is a hermeneutical discourse architectural design of intentional organization of interactions (discourses) between two intelligent agents (Sivakumar&Yahya, 2008).

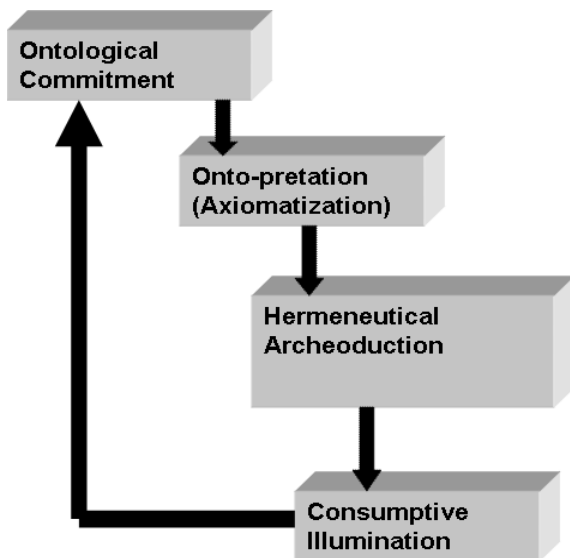


Figure 1:Hermeneutical Discourse Consciousness Architecture (HDCA)

The HDCA is an elementary model constructed based on emulation of human discourses (Sivakumar&Yahya, 2008). There are four main phases in the HDCA:

- i) Ontological Commitment
- ii) Onto-pretation
- iii) Hermeneutical Archeoduction
- iv) Consumptive Illumination

This HDCA will be a platform to analyse the processes and events of an intelligent agent discourse to the methods suitable for scientific enquiry and the consciousness of learning machines (intentional agent) in the Artificial Intelligence environment. Agents are software programs whose design is inspired by human cognition (anthropomorphic agents). An intentional agent is able to reason based on its intentions and beliefs, to create plans of action and to execute those plans. In addition to intentional agent capabilities, a social agent possesses explicit models of other agents (Moulin&Chaib-draa, 1996). The technical presentation of mathematical logic and deep elaborated construction of each phase are not presented in this paper.

The logical cognitive communicational limitation of existing methods of the learning machines (intentional agents) can be improvised and revamped with HDCA. In this architecture, the nature of intentional organization of interactions (discourses) and its essential properties and relations of hermeneutical construction on intelligent agents or learning machines will be discussed. The *ontological hermeneutics (Onto-hermeneutic)* is an in-depth effort of discourse analysis to elaborate and allow us to understand the actions and expressions of two communicators within an intentional or goal-directed framework (what Dennett, 1991 has called the intentional stance).

The recognition that other individuals have intentions that are different from our own is a critical step in a discourse and HDCA is providing a constructive visual explanation for the processes of a discourse.

Sometime in a discourse, severe communicative disorders may lead to disintegration of the communicative structure, which may fail to form ontological hermeneutic discourse. For example, autistic children often appear completely normal upon first examination; they look normal, have good motor control, and seem to have normal perceptual abilities. However, their behaviour is not goal directed, in part because they do not recognize or respond to normal social cues (Baron-Cohen, 1995). They do not maintain eye contact, recognize pointing gestures, or understand simple social conventions.

Therefore qualitative impairment in social interaction, communication, and restricted repetitive and stereotyped patterns of behaviour, interests, and activities that pervert the understanding of consciousness and the embodied intention in a discourse are called “*autistic hermeneutics*” (Sivakumar&Yahya, 2008).

*Autistic hermeneutics* in a discourse may lead to almost psychotic blindness to an agent consciousness of knowing, learning, communicating, formulating, recognizing, adapting and reacting. It is characterized by social disconnectedness, failure to recognize and read the subtleties of communicative structure and interactions, an obsessive addiction to routines and repeatable behaviours, and what psychiatrists call *meaningless noncontextual echolalia* which means the repetition of sentences and words without regard to their significance or the context in which they are spoken (Lambe, 2002).

### 3. INTENTION AS AN EMBODIMENT OF CONSCIOUSNESS

Analysis of nature should start with perceivable properties, and proceed from them, rather than with any purely mental abstraction or with intuited or a priori data. Human social dynamics are critically dependent on the ability to correctly attribute beliefs, goals, and precepts to other people.

In a hermeneutical discourse analysis, consciousness can be defined as a cognitive process that is a binding predicate of the intention. When the consciousness grasps and binds the intention into it then it will take a new form called intentionality (the term is given by Husserl, 1984) or *Intentionality = Consciousness (Intention)*.

Consciousness allows an actor or a reactor to understand the actions and expressions of an interaction within an intentional or goal-directed framework, which is the intentionality. Intentionality is a temporal and space binder of events in a discourse. In another term, intentionality is a process of binding temporal movement of events in the recognizable or interpretable ontological form.

Only the relay of intention makes it possible for two different intelligent elements to be locked into a meaningful interaction. This communication is in turn, only possible in the presence of consciousness. But consciousness is never able to project itself or is not projective without grasping the intention to form intentionality. The spatial-temporal characteristics of objects and events can only be determined and defined under an intentional stance.

The spatial characteristic of intentionality to refer the objects can be postulated with Local Reference Frame (LRF) and Global Reference Frame (GRF) concepts.

The space in the vicinity of an intentional agent or an actor is organized into *near*, *afar* and *intermediate*. This special organization with reference to the self-identified reference point of the agent constitutes what can be called a Local Reference Frame (LRF). While all these demonstratives are similar in that they orientate the reactors towards an object in the vicinity of the actor, they differ in that they orientate towards different regions of space.

Example:

- i) “That bird” (With reference to self-region space which refers to my body, the bird is far from my region).
- ii) “This bird” (With reference to self-region space which refers to my body, the bird is near to my region).

As distinct from LRF, GRF is a frame where the reference region of space is collectively agreed or common to the actor and the reactors.

Example:

- i) “The bird” (Under the collectively agreed reference region of space or the public-region of space, the bird is located in the central of public-region).

The relative location of space under the reference of self or public is an intentional state of expression. The semantic expressions of these examples clearly indicate the need for intentionality in a discourse.

Only through intentionality can the temporal extension be realized and measured. But as Whitehead’s (1926) theory of time presupposed:

There can be no time apart from space, and no space apart from time. Space exhibits the order and relations of events within a present while time exhibits the relation of other events to those in a given present. Time is a succession of extended presents which constitute real extended “strata” of nature. There is a sharp distinction between the reality of a present and the reality of a past or future. And no present can be instantaneous; its existence requires its temporal extension.<sup>1</sup>

Whitehead’s (1926) idea was backed up by Leibniz’s work that states, “space is nothing but the order of co-existent objects; time nothing but the order of successive events” (Colin, 2006).

Therefore the passage of time without spatial extension is not directly measurable. Intentionality will constitute the order and direction of events under the spatial extension to measure the temporal extensions of time. In a discourse, the state of consciousness of the intelligent agent can only be explicitly explicated if the intentionality of agent is identified and revealed. The intention embodied state of consciousness is very vital for any social intellection and communication. In any discourse analysis, the presence of intentionality as a binder of spatio-temporal events is crucial for the reliable and meaningful disclosure of syntactic and semantic interpretation.

In a discourse, once the formation of intentionality has been confirmed, then it will connect to a repository called the ontological repository where all the events and the elements of the context will be collected into this repository for further process. In the hermeneutical communication establishment, this ontological repository allows the ontological commitment between communicators.

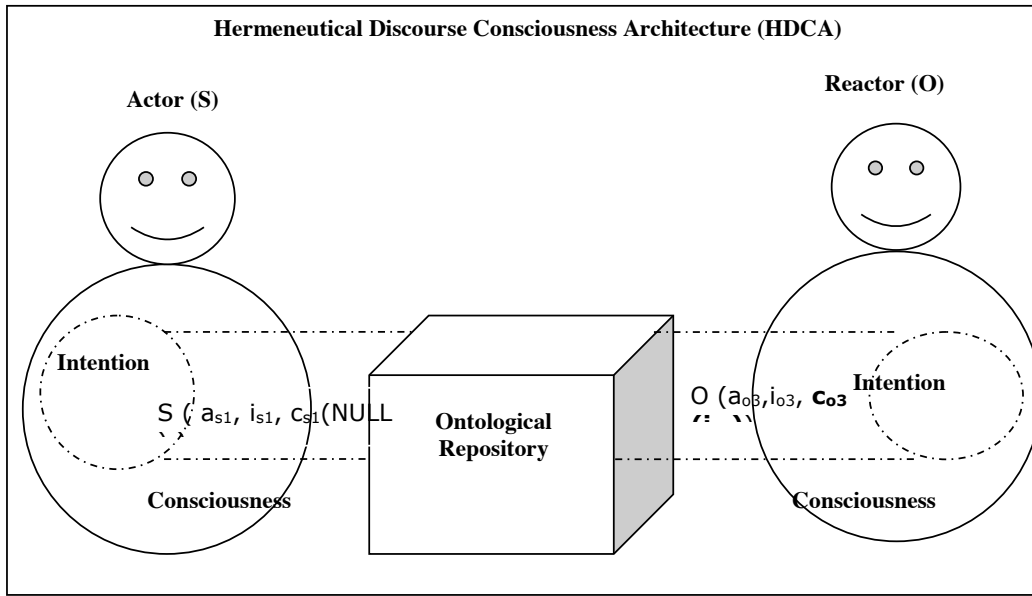


Figure 2: Visual sketch on HDCA

**Ontological Commitment** can be defined as the process of laying a prior intentional ground of consciousness by committing ontological repository onto intentionality (Sivakumar & Yahya, 2008). Refer to **Figure 2** for a visual understanding. In any discourse, if an actor and the reactor are not ontologically committed then it will lead to *Autistic hermeneutics*.

The phenomena of temporal extension for any intelligent agents are made possible by ontological commitment of that agent. The reactor intelligent agent is ontologically committed to the actor agent if the reactor agent is able to conceptualize the ontological repository and the intentionality of the actor agent, and then decipher the semantic expression by using a language. The detailed analysis on technical incorporation of the ontological repository and its functionality in the discourse analysis will not be presented in this paper. However the Hermeneutical Discourse Consciousness Architecture (HDCA)'s intentional existence of a communicating intelligent agent will be further investigated in the following section.

#### 4. HERMENEUTICAL DISCOURSE CONSCIOUSNESS ARCHITECTURE (HDCA)

For any intelligent agents without consciousness, a series of functional interactions remain meaningless to the learning machine even when they look meaningful to human beings. The role of intentionality as a spatial-temporal binder in an interaction is to initiate the interactional and non-interactional behaviour through the capacity to articulate the intentions by the subjects (actor), so that the responding objects (reactor) can understand the intention of the subject and interpret it by some means. Throwing the intention ("messages") by the subject to the object is a central aspect of a communication or a discourse (Barbara, 1986). Let:

**S:** *Subject (Actor)*

**O:** *Object (Reactor)*

**n:** *state difference*

**a<sub>n</sub>:** *action performed by the entity*

**i<sub>n</sub>:** *intention*

**n:** *state of entity (either Actor or Reactor)*

**c<sub>n</sub>(i<sub>n</sub>):** *Consciousness* (is an intention extracting and binding predicate or cognitive process which is related to the grasping of the intention)

NULL: Unknown

Table 1: HDCA intention binding process by the consciousness in a discourse

#	State	State of Subject	State of Object
i	Initial	S (a <sub>s1</sub> , i <sub>s1</sub> , c <sub>s1</sub> (NULL))	O (a <sub>o2</sub> , i <sub>o2</sub> , c <sub>o2</sub> (NULL))
ii	<b>Ontological Commitment</b> relaying intention		S (a <sub>s1</sub> , i <sub>s1</sub> , c <sub>s1</sub> (NULL)) O (a <sub>o2</sub> , i <sub>o2</sub> , c (S ( a <sub>s1</sub> , i <sub>s1</sub> , c <sub>s1</sub> (NULL))))
iii	<b>Onto-pretation</b> Becoming aware of intention		O (a <sub>o2</sub> , i <sub>o2</sub> , c (i <sub>s1</sub> ))
iv	<b>Hermeneutical Archeoduction</b> Grasping of intention causes or discloses		O (NULL, NULL, c <sub>o3</sub> (i <sub>s1</sub> ))
v	<b>Consumptive Illumination</b> Fusion of intentions		O (a <sub>o3</sub> , i <sub>o3</sub> , c <sub>o3</sub> (i <sub>s1</sub> ))

Referring to **Table 1**, the intention extraction and binding process by the consciousness takes place when two different entities, namely the Subject (S) - an actor and Object (O) - a reactor are locked into a communication. Action (a<sub>s1</sub>) of S, affects O the reactor and channels the cognitional processes into S, who holds the standing intention (i<sub>s1</sub>). Object (O) who is powerless in shaping the destiny of the event is devoid of this level of intention. Instead O is cognizing what is being done by S.

S has its own affecting action (a<sub>s1</sub>) which incarnates intention (i<sub>s1</sub>) with consciousness (c<sub>s1</sub>) as the ground for its intentional act. The process of ontological commitment takes place when S is laying the ground of interaction with O by relaying its intention. By relaying the intention to the reactor through **Ontological Commitment**, S will make the reactor grasp the intention of the actor through its consciousness and becoming aware of actor's intention.

This process results in interpreting and becoming aware of intention (i<sub>s1</sub>) which is in fact articulated by action (a<sub>s1</sub>) of S. This brings about a change of mode of being of reactor (O) and the consciousness with which it is affected causes the perception of what actor (S) has done as against being blind to it or totally unconcerned or indifferent. This state is symbolized in **Onto-pretation**. Onto-pretation is an extraction process of actor's intention using ontological stanzas in the ontological repository in relation to intentionality by the reactor. This cognitive processing brings about an understanding of the act through grasping the intentions of the initial act.

The refreshed intentionality c<sub>o3</sub> (i<sub>s1</sub>) in **Hermeneutical Archeoduction** which is the process of grasping of the intention causes or disclosures by actor indicates the incorporation or assimilation of actor's intention into an integral part of reactor's ontological repository. Hermeneutical Archeoduction is the process of archival induction or mining inside the ontological repository by the reactor. The grasping of this intention causes or discloses a number of possibilities among which is a new intention (i<sub>o3</sub>) decided upon and an act (a<sub>o3</sub>) is effected to articulate this. Here what makes (a<sub>o3</sub>) a reaction to (a<sub>s1</sub>) is precisely the structuring of awareness as intentionality c (i<sub>s1</sub>) and which forms the ground for the origination of the new intention (i<sub>o3</sub>). Without intentionality c (i<sub>s1</sub>) being causally linked to the doing of (a<sub>s3</sub>), the action (a<sub>s3</sub>) cannot be understood as the reaction to (a<sub>s1</sub>). It is not spatial-temporal contiguity, immediacy, adjacency or even semantic, pragmatic linkages and so forth that can be used to explain the notion of reaction and hence the notion of 'Act-Turn' as Heidegger (1962) has noted and is made of understanding in which such things as intentions are undiscoverable. Such intention-linked act-turn is where the reaction of reactor arises because of **fusion of intentions** (a term given by Loganathan, 1992) with actor. An Act-Turn is constituted by the fusion of intentions.

The **Consumptive Illumination** which is the process of fusion of intentions represents the emergence intention (i<sub>o3</sub>) against intentionality c<sub>3</sub> (i<sub>s1</sub>) as the germinating ground with the act action (a<sub>3</sub>) incarnating it into its structure. Consumptive Illumination is a process of fusion of intentions that represents the consumption of new illuminated state of consciousness and properties. This completes the Action-Reaction formation of one cycle. Where (i<sub>o3</sub>) is not different from intention (i<sub>s1</sub>), we have the formation of Act-Turn which, as it can be seen now, is only a special case

of paired action-reaction.

When an actor communicates an intention, in order to react appropriately, the reactor has to forego autonomy and act in a manner disclosing the same intention as the actor. The reactor must react in exactly the manner the actor intends that reactor to do. It is through such a fusion of intentions that the reactor is led in a discourse. If the intention of reactor is the same as the intention of the actor then this constitutes the fusion of intentions. The intention of the actor when it succeeds in transforming the intentional mode of being of the reactor so that there is identity of the primordial condition for there being an action reaction pair completes an Act-Turn proper. If there is absence of fusion of intentions the Act-Turns fails to complete and will lead to **Quasi Act-Turn**(Loganathan, 1992). To rectify the failure, the actor will reformulate the actions and this then emerges from a Quasi Act-Turn to another Act-Turn until the process reaches the level of Consumptive Illumination or abruptly terminates the whole execution of the communication.

## 5. CONCLUSION

This generally proposed HDCA as an intention relay structure in the consciousness requires elaborative mathematical work to be transported and to be institutionalized into the learning agent or machine. To transmigrate the processes and events of a human interaction to the methods suitable for the “psyches” of learning machines (intentional agent) requires extremely well defined functional activities of human “psyches”. HDCA architecture is an attempt to structurally elaborate the phases of intentionality formation and the role of consciousness in a discourse. To elucidate and to interpret the outcome of a discourse is impossible without addressing the role of hidden and embedded intentionality in it. The cognition, evaluation and orientation of the interaction are only relatively valid and identifiable with the presence of intentionality. This pioneering effort in onto-hermeneutic has provided new insight into the behaviourism of consciousness and intentionality in social interactive structure of discourse

## 6. ACKNOWLEDGEMENT

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## 7. REFERENCES

- Baron-Cohen, S. (1997). *Mindblindness: An essay on autism and theory of mind*. MIT press.
- Colin, P. & Brentano. (2006). Intentionality. Retrieved from <http://grimpeur.tamu.edu/~colin/Phil251/lect2-brentano.html>
- Dennett, D.C. (1991). *Consciousness Explained*. Boston: Little, Brown, and Co.
- Grosz, B. J., & Sidner, C. L. (1986). Attention, intentions, and the structure of discourse. *Computational linguistics*, 12(3), 175-204.
- Heidegger, M., Macquarrie, J., & Robinson, E. (1962). *Being and Time* Basil Blackwell.
- Husserl, E. (1984). *Logical Investigations 2. Husserliana: Volume 19* from documents written in 1901 – 1922.
- Lambe, P. (2002). *The Autism of Knowledge Management*. Singapore Institute of Management, 26-27
- Loganathan, K. (1992). *Hermeneutic Analysis of Discourse. India: International School of Dravidian Linguistics*.
- Moulin, B., & Chaib-Draa, B. (1996). An overview of distributed artificial intelligence. *Foundations of distributed artificial intelligence*, 1, 3-55.
- Ramakrishnan, S., & Yahya, A.H. (2008). Intentional Existence And Ontological Commitment In A Discourse. Proceedings from WMSCI 2008: 12<sup>th</sup> World Multi-Conference on Systemics, Cybernetics and Informatics.
- Ramakrishnan, S., & Yahya A.H. (2008). Neo -Onto-Hermeneutic Déjà Vu Life Cycle. Proceedings from WMSCI 2008: 12<sup>th</sup> World Multi-

*Conference on Systemics, Cybernetics and Informatics.*

Whitehead, A. N. (2011). Science and the modern world. Cambridge University Press.